

## ABSTRACT

A rotary fluid machine, such as a pump or motor has a housing with a spherical interior in which primary and secondary vanes rotate with the secondary vane reciprocating between open and closed positions with respect to the primary vane. Improvements to this type of fluid machine are defined to improve the rigidity of the internals while removing heat generated by compression as well as providing facile conversion of the machine from a liquid pump to a gas compressor, to provide for multiple flow streams at multiple flow rates in a single machine, multiple flow streams at multiple compression ratios in a single machine, and dual simultaneous function as a motor and a compressor.